

SEQUENCE LISTING

<110> Long, Li  
Lugman, Mohammad  
Yabannavar, Asha  
Zaror, Isabel

<120> USE OF ANTAGONISTIC ANTI-CD40 ANTIBODIES  
FOR TREATMENT OF AUTOIMMUNE AND INFLAMMATORY DISEASE AND ORGAN  
TRANSPLANT REJECTION

<130> PP23725.001 (284072)

<150> 60/565,710  
<151> 2004-04-27

<150> 60/525,579  
<151> 2003-11-26

<150> 60/517,337  
<151> 2003-11-04

<160> 12

<170> FastSEQ for Windows Version 4.0

<210> 1  
<211> 720  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Coding sequence for light chain of CHIR-12.12  
human anti-CD40 antibody

<221> CDS  
<222> (1)...(720)

```

<400> 1
atg gcg ctc cct gct cag ctc ctg ggg ctg cta atg ctc tgg gtc tct      48
Met Ala Leu Pro Ala Gln Leu Leu Gly Leu Leu Met Leu Trp Val Ser
  1              5              10              15

gga tcc agt ggg gat att gtg atg act cag tct cca ctc tcc ctg acc      96
Gly Ser Ser Gly Asp Ile Val Met Thr Gln Ser Pro Leu Ser Leu Thr
          20              25              30

gtc acc cct gga gag ccg gcc tcc atc tcc tgc agg tcc agt cag agc     144
Val Thr Pro Gly Glu Pro Ala Ser Ile Ser Cys Arg Ser Ser Gln Ser
          35              40              45

ctc ctg tat agt aat gga tac aac tat ttg gat tgg tac ctg cag aag     192
Leu Leu Tyr Ser Asn Gly Tyr Asn Tyr Leu Asp Trp Tyr Leu Gln Lys
          50              55              60

cca ggg cag tct cca cag gtc ctg atc tct ttg ggt tct aat cgg gcc     240
Pro Gly Gln Ser Pro Gln Val Leu Ile Ser Leu Gly Ser Asn Arg Ala
          65              70              75              80

tcc ggg gtc cct gac agg ttc agt ggc agt gga tca ggc aca gat ttt     288
Ser Gly Val Pro Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe
          85              90              95

aca ctg aaa atc agc aga gtg gag gct gag gat gtt ggg gtt tat tac     336
Thr Leu Lys Ile Ser Arg Val Glu Ala Glu Asp Val Gly Val Tyr Tyr

```

100	105	110	
tgc atg caa gct cga caa act cca ttc act ttc ggc cct ggg acc aaa			384
Cys Met Gln Ala Arg Gln Thr Pro Phe Thr Phe Gly Pro Gly Thr Lys			
115	120	125	
gtg gat atc aga cga act gtg gct gca cca tct gtc ttc atc ttc ccg			432
Val Asp Ile Arg Arg Thr Val Ala Ala Pro Ser Val Phe Ile Phe Pro			
130	135	140	
cca tct gat gag cag ttg aaa tct gga act gcc tct gtt gtg tgc ctg			480
Pro Ser Asp Glu Gln Leu Lys Ser Gly Thr Ala Ser Val Val Cys Leu			
145	150	155	160
ctg aat aac ttc tat ccc aga gag gcc aaa gta cag tgg aag gtg gat			528
Leu Asn Asn Phe Tyr Pro Arg Glu Ala Lys Val Gln Trp Lys Val Asp			
165	170	175	
aac gcc ctc caa tcg ggt aac tcc cag gag agt gtc aca gag cag gac			576
Asn Ala Leu Gln Ser Gly Asn Ser Gln Glu Ser Val Thr Glu Gln Asp			
180	185	190	
agc aag gac agc acc tac agc ctc agc agc acc ctg acg ctg agc aaa			624
Ser Lys Asp Ser Thr Tyr Ser Leu Ser Ser Thr Leu Thr Leu Ser Lys			
195	200	205	
gca gac tac gag aaa cac aaa gtc tac gcc tgc gaa gtc acc cat cag			672
Ala Asp Tyr Glu Lys His Lys Val Tyr Ala Cys Glu Val Thr His Gln			
210	215	220	
ggc ctg agc tcg ccc gtc aca aag agc ttc aac agg gga gag tgt tag			720
Gly Leu Ser Ser Pro Val Thr Lys Ser Phe Asn Arg Gly Glu Cys *			
225	230	235	

<210> 2

<211> 239

<212> PRT

<213> Artificial Sequence

<220>

<223> Light chain of CHIR-12.12 human anti-CD40 antibody

<400> 2

Met	Ala	Leu	Pro	Ala	Gln	Leu	Leu	Gly	Leu	Leu	Met	Leu	Trp	Val	Ser
1				5				10					15		
Gly	Ser	Ser	Gly	Asp	Ile	Val	Met	Thr	Gln	Ser	Pro	Leu	Ser	Leu	Thr
			20					25					30		
Val	Thr	Pro	Gly	Glu	Pro	Ala	Ser	Ile	Ser	Cys	Arg	Ser	Ser	Gln	Ser
			35				40					45			
Leu	Leu	Tyr	Ser	Asn	Gly	Tyr	Asn	Tyr	Leu	Asp	Trp	Tyr	Leu	Gln	Lys
			50			55				60					
Pro	Gly	Gln	Ser	Pro	Gln	Val	Leu	Ile	Ser	Leu	Gly	Ser	Asn	Arg	Ala
65					70				75					80	
Ser	Gly	Val	Pro	Asp	Arg	Phe	Ser	Gly	Ser	Gly	Ser	Gly	Thr	Asp	Phe
				85				90					95		
Thr	Leu	Lys	Ile	Ser	Arg	Val	Glu	Ala	Glu	Asp	Val	Gly	Val	Tyr	Tyr
			100					105					110		
Cys	Met	Gln	Ala	Arg	Gln	Thr	Pro	Phe	Thr	Phe	Gly	Pro	Gly	Thr	Lys
			115				120					125			
Val	Asp	Ile	Arg	Arg	Thr	Val	Ala	Ala	Pro	Ser	Val	Phe	Ile	Phe	Pro
			130			135					140				
Pro	Ser	Asp	Glu	Gln	Leu	Lys	Ser	Gly	Thr	Ala	Ser	Val	Val	Cys	Leu
145				150					155					160	
Leu	Asn	Asn	Phe	Tyr	Pro	Arg	Glu	Ala	Lys	Val	Gln	Trp	Lys	Val	Asp

				165						170					175				
Asn	Ala	Leu	Gln	Ser	Gly	Asn	Ser	Gln	Glu	Ser	Val	Thr	Glu	Gln	Asp				
			180					185					190						
Ser	Lys	Asp	Ser	Thr	Tyr	Ser	Leu	Ser	Ser	Thr	Leu	Thr	Leu	Ser	Lys				
		195					200					205							
Ala	Asp	Tyr	Glu	Lys	His	Lys	Val	Tyr	Ala	Cys	Glu	Val	Thr	His	Gln				
	210					215					220								
Gly	Leu	Ser	Ser	Pro	Val	Thr	Lys	Ser	Phe	Asn	Arg	Gly	Glu	Cys					
225					230					235									

<210> 3  
 <211> 2016  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Coding sequence for heavy chain of CHIR-12.12  
 human anti-CD40 antibody (with introns)

<400> 3  
 atggagtttg ggctgagctg ggttttcctt gttgctatgt taagaggtgt ccagtgtcag 60  
 gtgcagtttg tggagtctgg gggaggcgtg gtccagcctg ggaggtccct gagactctcc 120  
 tgtgcagcct ctggattcac cttcagtagc tatggcatgc actgggtccg ccaggctcca 180  
 ggcaaggggg tggagtgggt ggcagttata tcatatgagg aaagtaatag ataccatgca 240  
 gactccgtga agggccgatt caccatctcc agagacaatt ccaagatcac gctgtatctg 300  
 caaatgaaca gcctcagaac tgaggacacg gctgtgtatt actgtgagag agatgggggt 360  
 atagcagcac ctgggcctga ctactggggc cagggaaacc tggtcaccgt ctctcagca 420  
 agtaccgaag gcccatccgt cttccccctg gcgcccgtca gcaagagcac ctctgggggc 480  
 acagcggccc tgggctgcct ggtcaaggac tacttccccg aaccggtgac ggtgtcgtgg 540  
 aactcaggcg ccctgaccag cggcgtgcac accttccccg ctgtcctaca gtcctcagga 600  
 ctctactccc tcagcagcgt ggtgaccgtg ccctccagca gcttgggcac ccagacctac 660  
 atctgcaacg tgaatcacia gccagcaaac accaaggtgg acaagagagt tgggtgagagg 720  
 ccagcacagg gagggagggt gtctgctgga agccaggctc agcgctcctg cctggacgca 780  
 tcccggctat gcagtcccag tccagggcag caaggcaggc cccgtctgcc tcttcacccg 840  
 gaggcctctg cccgccccac tcatgctcag ggagagggtc ttctggcttt tccccaggc 900  
 tctgggcagg cacaggctag gtgcccctaa cccaggccct gcacacaaag gggcagggtgc 960  
 tgggctcaga cctgccaaga gccatatccg ggaggaccct gcccctgacc taagcccacc 1020  
 ccaaaggcca aactctccac tccctcagct cggacacctt ctctcctccc agattccagt 1080  
 aactcccaat cttctctctg cagagcccaa atcttgtgac aaaactcaca catgcccacc 1140  
 gtgcccagggt aagccagccc aggcctcgcc ctccagctca aggcgggaca ggtgccctag 1200  
 agtagcctgc atccaggagc aggcgccagc cgggtgctga cacgtccacc tccatctctt 1260  
 cctcagcacc tgaactcctg gggggaccgt cagtcttctt cttcccccca aaacccaagg 1320  
 acaccctcat gatctcccgg acccctgagg tcacatgcgt ggtggtggac gtgagccacg 1380  
 aagaccctga ggtcaagttc aactggtacg tggacggcgt ggaggtgcat aatgccaaga 1440  
 caaagccgag ggaggagcag tacaacagca cgtaccgtgt ggtcagcgtc ctcaccgtcc 1500  
 tgcaccagga ctggctgaat ggcaaggagt acaagtgaac ggtctccaac aaagccctcc 1560  
 cagcccccat cgagaaaacc atctccaaag ccaaaggtgg gaccctgtgg gtgaggggc 1620  
 cacatggaca gagccgggt cggcccaccc tctgcctga gagtgaaccg tgtaccaacc 1680  
 tctgtcccta cagggcagcc ccgagaacca cagggtgaca ccctgcccc atcccggag 1740  
 gagatgacca agaaccaggc cagcctgacc tgctgtgtca aaggcttcta tcccagcgac 1800  
 atcgccgtgg agtgggagag caatgggcag ccggagaaca actacaagac cagcctccc 1860  
 gtgctggact ccgacggctc cttcttctc tatagcaagc tcaccgtgga caagagcagg 1920  
 tggcagcagg ggaacgtctt ctcatgctcc gtgatgcatg aggtctctgca caaccactac 1980  
 acgcagaaga gcctctccct gtctccgggt aatga 2016

<210> 4  
 <211> 469  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Heavy chain of CHIR-12.12 human anti-CD40 antibody

<400> 4  
 Met Glu Phe Gly Leu Ser Trp Val Phe Leu Val Ala Ile Leu Arg Gly

1	5	10	15
Val Gln Cys Gln Val Gln Leu Val Glu Ser Gly Gly Gly Val Val Gln			
Pro Gly Arg Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe	20	25	30
Ser Ser Tyr Gly Met His Trp Val Arg Gln Ala Pro Gly Lys Gly Leu	35	40	45
Glu Trp Val Ala Val Ile Ser Tyr Glu Glu Ser Asn Arg Tyr His Ala	50	55	60
Asp Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Ile	65	70	75
Thr Leu Tyr Leu Gln Met Asn Ser Leu Arg Thr Glu Asp Thr Ala Val	85	90	95
Tyr Tyr Cys Ala Arg Asp Gly Gly Ile Ala Ala Pro Gly Pro Asp Tyr	100	105	110
Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Ala Ser Thr Lys Gly	115	120	125
Pro Ser Val Phe Pro Leu Ala Pro Ala Ser Lys Ser Thr Ser Gly Gly	130	135	140
Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val	145	150	155
Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser Gly Val His Thr Phe	165	170	175
Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val	180	185	190
Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val	195	200	205
Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys Arg Val Glu Pro Lys	210	215	220
Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu Leu	225	230	235
Leu Gly Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr	245	250	255
Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val	260	265	270
Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val	275	280	285
Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser	290	295	300
Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu	305	310	315
Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala	325	330	335
Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro	340	345	350
Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn Gln	355	360	365
Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala	370	375	380
Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr	385	390	395
Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu	405	410	415
Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser	420	425	430
Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser	435	440	445
Leu Ser Pro Gly Lys	450	455	460
465			

<210> 5  
 <211> 469  
 <212> PRT  
 <213> Artificial Sequence

<220>

<223> Heavy chain of variant of CHIR-12.12 human  
anti-CD40 antibody

<400> 5

```
Met Glu Phe Gly Leu Ser Trp Val Phe Leu Val Ala Ile Leu Arg Gly
 1          5          10          15
Val Gln Cys Gln Val Gln Leu Val Glu Ser Gly Gly Gly Val Val Gln
          20          25          30
Pro Gly Arg Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe
          35          40          45
Ser Ser Tyr Gly Met His Trp Val Arg Gln Ala Pro Gly Lys Gly Leu
          50          55          60
Glu Trp Val Ala Val Ile Ser Tyr Glu Glu Ser Asn Arg Tyr His Ala
65          70          75          80
Asp Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Ile
          85          90          95
Thr Leu Tyr Leu Gln Met Asn Ser Leu Arg Thr Glu Asp Thr Ala Val
          100          105          110
Tyr Tyr Cys Ala Arg Asp Gly Gly Ile Ala Ala Pro Gly Pro Asp Tyr
          115          120          125
Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Ala Ser Thr Lys Gly
130          135          140
Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr Ser Gly Gly
145          150          155          160
Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val
          165          170          175
Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser Gly Val His Thr Phe
          180          185          190
Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val
          195          200          205
Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val
210          215          220
Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys Arg Val Glu Pro Lys
225          230          235          240
Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu Leu
          245          250          255
Leu Gly Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr
          260          265          270
Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val
          275          280          285
Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val
          290          295          300
Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser
305          310          315          320
Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu
          325          330          335
Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala
          340          345          350
Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro
          355          360          365
Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn Gln
          370          375          380
Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala
385          390          395          400
Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr
          405          410          415
Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu
          420          425          430
Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser
          435          440          445
Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser
          450          455          460
Leu Ser Pro Gly Lys
465
```

<210> 6  
 <211> 239  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Light chain of CHIR-5.9 human anti-CD40 antibody

<400> 6  
 Met Ala Leu Leu Ala Gln Leu Leu Gly Leu Leu Met Leu Trp Val Pro  
 1 5 10 15  
 Gly Ser Ser Gly Ala Ile Val Met Thr Gln Pro Pro Leu Ser Ser Pro  
 20 25 30  
 Val Thr Leu Gly Gln Pro Ala Ser Ile Ser Cys Arg Ser Ser Gln Ser  
 35 40 45  
 Leu Val His Ser Asp Gly Asn Thr Tyr Leu Asn Trp Leu Gln Gln Arg  
 50 55 60  
 Pro Gly Gln Pro Pro Arg Leu Leu Ile Tyr Lys Phe Phe Arg Arg Leu  
 65 70 75 80  
 Ser Gly Val Pro Asp Arg Phe Ser Gly Ser Gly Ala Gly Thr Asp Phe  
 85 90 95  
 Thr Leu Lys Ile Ser Arg Val Glu Ala Glu Asp Val Gly Val Tyr Tyr  
 100 105 110  
 Cys Met Gln Val Thr Gln Phe Pro His Thr Phe Gly Gln Gly Thr Arg  
 115 120 125  
 Leu Glu Ile Lys Arg Thr Val Ala Ala Pro Ser Val Phe Ile Phe Pro  
 130 135 140  
 Pro Ser Asp Glu Gln Leu Lys Ser Gly Thr Ala Ser Val Val Cys Leu  
 145 150 155 160  
 Leu Asn Asn Phe Tyr Pro Arg Glu Ala Lys Val Gln Trp Lys Val Asp  
 165 170 175  
 Asn Ala Leu Gln Ser Gly Asn Ser Gln Glu Ser Val Thr Glu Gln Asp  
 180 185 190  
 Ser Lys Asp Ser Thr Tyr Ser Leu Ser Ser Thr Leu Thr Leu Ser Lys  
 195 200 205  
 Ala Asp Tyr Glu Lys His Lys Val Tyr Ala Cys Glu Val Thr His Gln  
 210 215 220  
 Gly Leu Ser Ser Pro Val Thr Lys Ser Phe Asn Arg Gly Glu Cys  
 225 230 235

<210> 7  
 <211> 474  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Heavy chain of CHIR-5.9 human anti-CD40 antibody

<400> 7  
 Met Gly Ser Thr Ala Ile Leu Ala Leu Leu Leu Ala Val Leu Gln Gly  
 1 5 10 15  
 Val Cys Ala Glu Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys  
 20 25 30  
 Pro Gly Glu Ser Leu Lys Ile Ser Cys Lys Gly Ser Gly Tyr Ser Phe  
 35 40 45  
 Thr Ser Tyr Trp Ile Gly Trp Val Arg Gln Met Pro Gly Lys Gly Leu  
 50 55 60  
 Glu Trp Met Gly Ile Ile Tyr Pro Gly Asp Ser Asp Thr Arg Tyr Ser  
 65 70 75 80  
 Pro Ser Phe Gln Gly Gln Val Thr Ile Ser Ala Asp Lys Ser Ile Ser  
 85 90 95  
 Thr Ala Tyr Leu Gln Trp Ser Ser Leu Lys Ala Ser Asp Thr Ala Met  
 100 105 110  
 Tyr Tyr Cys Ala Arg Gly Thr Ala Ala Gly Arg Asp Tyr Tyr Tyr Tyr



65					70					75				80	
Pro	Ser	Phe	Gln	Gly	Gln	Val	Thr	Ile	Ser	Ala	Asp	Lys	Ser	Ile	Ser
				85					90					95	
Thr	Ala	Tyr	Leu	Gln	Trp	Ser	Ser	Leu	Lys	Ala	Ser	Asp	Thr	Ala	Met
			100					105					110		
Tyr	Tyr	Cys	Ala	Arg	Gly	Thr	Ala	Ala	Gly	Arg	Asp	Tyr	Tyr	Tyr	Tyr
		115			120							125			
Tyr	Gly	Met	Asp	Val	Trp	Gly	Gln	Gly	Thr	Thr	Val	Thr	Val	Ser	Ser
	130				135						140				
Ala	Ser	Thr	Lys	Gly	Pro	Ser	Val	Phe	Pro	Leu	Ala	Pro	Ser	Ser	Lys
145				150						155					160
Ser	Thr	Ser	Gly	Gly	Thr	Ala	Ala	Leu	Gly	Cys	Leu	Val	Lys	Asp	Tyr
			165					170						175	
Phe	Pro	Glu	Pro	Val	Thr	Val	Ser	Trp	Asn	Ser	Gly	Ala	Leu	Thr	Ser
			180					185					190		
Gly	Val	His	Thr	Phe	Pro	Ala	Val	Leu	Gln	Ser	Ser	Gly	Leu	Tyr	Ser
		195			200							205			
Leu	Ser	Ser	Val	Val	Thr	Val	Pro	Ser	Ser	Ser	Leu	Gly	Thr	Gln	Thr
	210				215						220				
Tyr	Ile	Cys	Asn	Val	Asn	His	Lys	Pro	Ser	Asn	Thr	Lys	Val	Asp	Lys
225				230						235					240
Arg	Val	Glu	Pro	Lys	Ser	Cys	Asp	Lys	Thr	His	Thr	Cys	Pro	Pro	Cys
			245					250						255	
Pro	Ala	Pro	Glu	Leu	Leu	Gly	Gly	Pro	Ser	Val	Phe	Leu	Phe	Pro	Pro
		260						265				270			
Lys	Pro	Lys	Asp	Thr	Leu	Met	Ile	Ser	Arg	Thr	Pro	Glu	Val	Thr	Cys
		275					280					285			
Val	Val	Val	Asp	Val	Ser	His	Glu	Asp	Pro	Glu	Val	Lys	Phe	Asn	Trp
	290				295					300					
Tyr	Val	Asp	Gly	Val	Glu	Val	His	Asn	Ala	Lys	Thr	Lys	Pro	Arg	Glu
305				310						315					320
Glu	Gln	Tyr	Asn	Ser	Thr	Tyr	Arg	Val	Val	Ser	Val	Leu	Thr	Val	Leu
			325					330						335	
His	Gln	Asp	Trp	Leu	Asn	Gly	Lys	Glu	Tyr	Lys	Cys	Lys	Val	Ser	Asn
		340						345					350		
Lys	Ala	Leu	Pro	Ala	Pro	Ile	Glu	Lys	Thr	Ile	Ser	Lys	Ala	Lys	Gly
		355					360					365			
Gln	Pro	Arg	Glu	Pro	Gln	Val	Tyr	Thr	Leu	Pro	Pro	Ser	Arg	Glu	Glu
	370				375					380					
Met	Thr	Lys	Asn	Gln	Val	Ser	Leu	Thr	Cys	Leu	Val	Lys	Gly	Phe	Tyr
385				390						395					400
Pro	Ser	Asp	Ile	Ala	Val	Glu	Trp	Glu	Ser	Asn	Gly	Gln	Pro	Glu	Asn
			405					410						415	
Asn	Tyr	Lys	Thr	Thr	Pro	Pro	Val	Leu	Asp	Ser	Asp	Gly	Ser	Phe	Phe
		420						425				430			
Leu	Tyr	Ser	Lys	Leu	Thr	Val	Asp	Lys	Ser	Arg	Trp	Gln	Gln	Gly	Asn
		435					440					445			
Val	Phe	Ser	Cys	Ser	Val	Met	His	Glu	Ala	Leu	His	Asn	His	Tyr	Thr
	450					455					460				
Gln	Lys	Ser	Leu	Ser	Leu	Ser	Pro	Gly	Lys						
465					470										

<210> 9  
 <211> 612  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (1)...(612)

<221> misc\_feature  
 <222> (0)...(0)  
 <223> Coding sequence for short isoform of human CD40



```

<400> 9
atg gtt cgt ctg cct ctg cag tgc gtc ctc tgg ggc tgc ttg ctg acc 48
Met Val Arg Leu Pro Leu Gln Cys Val Leu Trp Gly Cys Leu Leu Thr
1 5 10 15

gct gtc cat cca gaa cca ccc act gca tgc aga gaa aaa cag tac cta 96
Ala Val His Pro Glu Pro Pro Thr Ala Cys Arg Glu Lys Gln Tyr Leu
20 25 30

ata aac agt cag tgc tgt tct ttg tgc cag cca gga cag aaa ctg gtg 144
Ile Asn Ser Gln Cys Cys Ser Leu Cys Gln Pro Gly Gln Lys Leu Val
35 40 45

agt gac tgc aca gag ttc act gaa acg gaa tgc ctt cct tgc ggt gaa 192
Ser Asp Cys Thr Glu Phe Thr Glu Thr Glu Cys Leu Pro Cys Gly Glu
50 55 60

agc gaa ttc cta gac acc tgg aac aga gag aca cac tgc cac cag cac 240
Ser Glu Phe Leu Asp Thr Trp Asn Arg Glu Thr His Cys His Gln His
65 70 75 80

aaa tac tgc gac ccc aac cta ggg ctt cgg gtc cag cag aag ggc acc 288
Lys Tyr Cys Asp Pro Asn Leu Gly Leu Arg Val Gln Gln Lys Gly Thr
85 90 95

tca gaa aca gac acc atc tgc acc tgt gaa gaa ggc tgg cac tgt acg 336
Ser Glu Thr Asp Thr Ile Cys Thr Cys Glu Glu Gly Trp His Cys Thr
100 105 110

agt gag gcc tgt gag agc tgt gtc ctg cac cgc tca tgc tcg ccc ggc 384
Ser Glu Ala Cys Glu Ser Cys Val Leu His Arg Ser Cys Ser Pro Gly
115 120 125

ttt ggg gtc aag cag att gct aca ggg gtt tct gat acc atc tgc gag 432
Phe Gly Val Lys Gln Ile Ala Thr Gly Val Ser Asp Thr Ile Cys Glu
130 135 140

ccc tgc cca gtc ggc ttc ttc tcc aat gtg tca tct gct ttc gaa aaa 480
Pro Cys Pro Val Gly Phe Phe Ser Asn Val Ser Ser Ala Phe Glu Lys
145 150 155 160

tgt cac cct tgg aca agg tcc cca gga tcg gct gag agc cct ggt ggt 528
Cys His Pro Trp Thr Arg Ser Pro Gly Ser Ala Glu Ser Pro Gly Gly
165 170 175

gat ccc cat cat ctt cgg gat cct gtt tgc cat cct ctt ggt gct ggt 576
Asp Pro His His Leu Arg Asp Pro Val Cys His Pro Leu Gly Ala Gly
180 185 190

ctt tat caa aaa ggt ggc caa gaa gcc aac caa taa 612
Leu Tyr Gln Lys Gly Gly Gln Glu Ala Asn Gln *
195 200

```

```

<210> 10
<211> 203
<212> PRT
<213> Homo sapiens

```

```

<400> 10
Met Val Arg Leu Pro Leu Gln Cys Val Leu Trp Gly Cys Leu Leu Thr
1 5 10 15
Ala Val His Pro Glu Pro Pro Thr Ala Cys Arg Glu Lys Gln Tyr Leu
20 25 30
Ile Asn Ser Gln Cys Cys Ser Leu Cys Gln Pro Gly Gln Lys Leu Val
35 40 45

```

Ser Asp Cys Thr Glu Phe Thr Glu Thr Glu Cys Leu Pro Cys Gly Glu  
 50 55 60  
 Ser Glu Phe Leu Asp Thr Trp Asn Arg Glu Thr His Cys His Gln His  
 65 70 75 80  
 Lys Tyr Cys Asp Pro Asn Leu Gly Leu Arg Val Gln Gln Lys Gly Thr  
 85 90 95  
 Ser Glu Thr Asp Thr Ile Cys Thr Cys Glu Glu Gly Trp His Cys Thr  
 100 105 110  
 Ser Glu Ala Cys Glu Ser Cys Val Leu His Arg Ser Cys Ser Pro Gly  
 115 120 125  
 Phe Gly Val Lys Gln Ile Ala Thr Gly Val Ser Asp Thr Ile Cys Glu  
 130 135 140  
 Pro Cys Pro Val Gly Phe Phe Ser Asn Val Ser Ser Ala Phe Glu Lys  
 145 150 155 160  
 Cys His Pro Trp Thr Arg Ser Pro Gly Ser Ala Glu Ser Pro Gly Gly  
 165 170 175  
 Asp Pro His His Leu Arg Asp Pro Val Cys His Pro Leu Gly Ala Gly  
 180 185 190  
 Leu Tyr Gln Lys Gly Gly Gln Glu Ala Asn Gln  
 195 200

<210> 11  
 <211> 834  
 <212> DNA  
 <213> Homo sapiens  
  
 <220>  
 <221> CDS  
 <222> (1)...(834)  
  
 <221> misc\_feature  
 <222> (0)...(0)  
 <223> Coding sequence for long isoform of human CD40

<400> 11  
 atg gtt cgt ctg cct ctg cag tgc gtc ctc tgg ggc tgc ttg ctg acc 48  
 Met Val Arg Leu Pro Leu Gln Cys Val Leu Trp Gly Cys Leu Leu Thr  
 1 5 10 15  
  
 gct gtc cat cca gaa cca ccc act gca tgc aga gaa aaa cag tac cta 96  
 Ala Val His Pro Glu Pro Pro Thr Ala Cys Arg Glu Lys Gln Tyr Leu  
 20 25 30  
  
 ata aac agt cag tgc tgt tct ttg tgc cag cca gga cag aaa ctg gtg 144  
 Ile Asn Ser Gln Cys Cys Ser Leu Cys Gln Pro Gly Gln Lys Leu Val  
 35 40 45  
  
 agt gac tgc aca gag ttc act gaa acg gaa tgc ctt cct tgc ggt gaa 192  
 Ser Asp Cys Thr Glu Phe Thr Glu Thr Glu Cys Leu Pro Cys Gly Glu  
 50 55 60  
  
 agc gaa ttc cta gac acc tgg aac aga gag aca cac tgc cac cag cac 240  
 Ser Glu Phe Leu Asp Thr Trp Asn Arg Glu Thr His Cys His Gln His  
 65 70 75 80  
  
 aaa tac tgc gac ccc aac cta ggg ctt cgg gtc cag cag aag ggc acc 288  
 Lys Tyr Cys Asp Pro Asn Leu Gly Leu Arg Val Gln Gln Lys Gly Thr  
 85 90 95  
  
 tca gaa aca gac acc atc tgc acc tgt gaa gaa ggc tgg cac tgt acg 336  
 Ser Glu Thr Asp Thr Ile Cys Thr Cys Glu Glu Gly Trp His Cys Thr  
 100 105 110  
  
 agt gag gcc tgt gag agc tgt gtc ctg cac cgc tca tgc tcg ccc ggc 384  
 Ser Glu Ala Cys Glu Ser Cys Val Leu His Arg Ser Cys Ser Pro Gly

115	120	125	
ttt ggg gtc aag cag att gct aca ggg gtt tct gat acc atc tgc gag			432
Phe Gly Val Lys Gln Ile Ala Thr Gly Val Ser Asp Thr Ile Cys Glu			
130	135	140	
ccc tgc cca gtc ggc ttc ttc tcc aat gtg tca tct gct ttc gaa aaa			480
Pro Cys Pro Val Gly Phe Phe Ser Asn Val Ser Ser Ala Phe Glu Lys			
145	150	155	160
tgt cac cct tgg aca agc tgt gag acc aaa gac ctg gtt gtg caa cag			528
Cys His Pro Trp Thr Ser Cys Glu Thr Lys Asp Leu Val Val Gln Gln			
165	170	175	
gca ggc aca aac aag act gat gtt gtc tgt ggt ccc cag gat cgg ctg			576
Ala Gly Thr Asn Lys Thr Asp Val Val Cys Gly Pro Gln Asp Arg Leu			
180	185	190	
aga gcc ctg gtg gtg atc ccc atc atc ttc ggg atc ctg ttt gcc atc			624
Arg Ala Leu Val Val Ile Pro Ile Ile Phe Gly Ile Leu Phe Ala Ile			
195	200	205	
ctc ttg gtg ctg gtc ttt atc aaa aag gtg gcc aag aag cca acc aat			672
Leu Leu Val Leu Val Phe Ile Lys Lys Val Ala Lys Lys Pro Thr Asn			
210	215	220	
aag gcc ccc cac ccc aag cag gaa ccc cag gag atc aat ttt ccc gac			720
Lys Ala Pro His Pro Lys Gln Glu Pro Gln Glu Ile Asn Phe Pro Asp			
225	230	235	240
gat ctt cct ggc tcc aac act gct gct cca gtg cag gag act tta cat			768
Asp Leu Pro Gly Ser Asn Thr Ala Ala Pro Val Gln Glu Thr Leu His			
245	250	255	
gga tgc caa ccg gtc acc cag gag gat ggc aaa gag agt cgc atc tca			816
Gly Cys Gln Pro Val Thr Gln Glu Asp Gly Lys Glu Ser Arg Ile Ser			
260	265	270	
gtg cag gag aga cag tga			834
Val Gln Glu Arg Gln *			
275			

<210> 12  
 <211> 277  
 <212> PRT  
 <213> Homo sapiens

<400> 12  
 Met Val Arg Leu Pro Leu Gln Cys Val Leu Trp Gly Cys Leu Leu Thr  
 1 5 10 15  
 Ala Val His Pro Glu Pro Pro Thr Ala Cys Arg Glu Lys Gln Tyr Leu  
 20 25 30  
 Ile Asn Ser Gln Cys Cys Ser Leu Cys Gln Pro Gly Gln Lys Leu Val  
 35 40 45  
 Ser Asp Cys Thr Glu Phe Thr Glu Thr Glu Cys Leu Pro Cys Gly Glu  
 50 55 60  
 Ser Glu Phe Leu Asp Thr Trp Asn Arg Glu Thr His Cys His Gln His  
 65 70 75 80  
 Lys Tyr Cys Asp Pro Asn Leu Gly Leu Arg Val Gln Gln Lys Gly Thr  
 85 90 95  
 Ser Glu Thr Asp Thr Ile Cys Thr Cys Glu Glu Gly Trp His Cys Thr  
 100 105 110  
 Ser Glu Ala Cys Glu Ser Cys Val Leu His Arg Ser Cys Ser Pro Gly  
 115 120 125  
 Phe Gly Val Lys Gln Ile Ala Thr Gly Val Ser Asp Thr Ile Cys Glu

130					135					140							
Pro	Cys	Pro	Val	Gly	Phe	Phe	Ser	Asn	Val	Ser	Ser	Ala	Phe	Glu	Lys		
145					150					155					160		
Cys	His	Pro	Trp	Thr	Ser	Cys	Glu	Thr	Lys	Asp	Leu	Val	Val	Gln	Gln		
				165					170						175		
Ala	Gly	Thr	Asn	Lys	Thr	Asp	Val	Val	Cys	Gly	Pro	Gln	Asp	Arg	Leu		
			180					185					190				
Arg	Ala	Leu	Val	Val	Ile	Pro	Ile	Ile	Phe	Gly	Ile	Leu	Phe	Ala	Ile		
		195				200					205						
Leu	Leu	Val	Leu	Val	Phe	Ile	Lys	Lys	Val	Ala	Lys	Lys	Pro	Thr	Asn		
	210					215				220							
Lys	Ala	Pro	His	Pro	Lys	Gln	Glu	Pro	Gln	Glu	Ile	Asn	Phe	Pro	Asp		
225					230					235					240		
Asp	Leu	Pro	Gly	Ser	Asn	Thr	Ala	Ala	Pro	Val	Gln	Glu	Thr	Leu	His		
				245					250					255			
Gly	Cys	Gln	Pro	Val	Thr	Gln	Glu	Asp	Gly	Lys	Glu	Ser	Arg	Ile	Ser		
			260					265					270				
Val	Gln	Glu	Arg	Gln													
			275														